In the claims:

1. (Currently amended) In a radiant wall furnace having walls, a floor and a burner configuration utilizing rows or columns or both of multiple radiant wall burners having longitudinal axes substantially perpendicular and attached to a wall of the furnace, each directing a combustible fuel gas-excess air mixture in a direction radially outward relative to the longitudinal axis thereof into a combustion zone adjacent a burner tile, the improvement which comprises:

an array of secondary fuel gas nozzles for injecting secondary fuel gas into the furnace that mixes with flue gases in the furnace and combusts with excess air, lowers the temperature of the burning fuel gas and reduces the formation of NO_X, and means for introducing secondary fuel gas into said secondary fuel gas nozzles, said secondary fuel gas nozzles being located separate and remote from the radiant wall burners~~, and means for introducing secondary fuel gas into the secondary fuel gas nozzles whereby~~ such that the secondary fuel gas is not encapsulated or surrounded by the fuel gas-air mixture from the radiant wall burners thereby allowing secondary fuel gas to ~~mixes~~ mix with flue gases in the furnace prior to mixing with the fuel gas-air mixture ~~with flue gases in the furnace and combusts with excess air, lowers the temperature of the burning fuel gas and reduces the formation of NO_X~~.

2. (Original) The improved furnace burner configuration of claim 1 wherein the array of secondary fuel gas nozzles is positioned in at least one row adjacent to the rows of radiant wall burners.

3. (Original) The improved furnace burner configuration of claim 1 wherein the secondary fuel gas nozzles direct secondary fuel gas to a location in the furnace on the opposite side of the combustion zone from the radiant wall burners.

4. (Original) The improved furnace burner configuration of claim 1 wherein the rows or columns or both of radiant wall burners are approximately parallel, the radiant wall burners are approximately evenly spaced and the secondary fuel gas nozzles are in one or two rows with each secondary fuel gas nozzle positioned adjacent to a radiant wall burner or offset from a radiant wall burner.

5. (Original) The improved furnace burner configuration of claim 1 wherein the rows of radiant wall burners are approximately parallel, the radiant wall burners are relatively evenly spaced in columns and the secondary fuel gas nozzles are in a middle first row and an outside second row wherein each secondary fuel gas nozzle of the middle first row is adjacent to a radiant wall burner and wherein each secondary fuel gas nozzle of the outside second row is offset from a radiant wall burner.

6. (Original) The improved burner configuration of claim 1 wherein the radiant wall burner rows are approximately parallel and each row is offset one-half spacing from the regular spacing of adjacent rows.

7. (Original) The improved burner configuration of claim 1 wherein one or more rows of secondary fuel gas nozzles are located adjacent to the rows of radiant wall burners and an additional one or more rows of secondary fuel gas nozzles are located midway within the rows of radiant wall burners.

8. (Original) The improved burner configuration of claim 1 wherein each secondary fuel gas nozzle has a tip having at least one fuel delivery opening therein to eject fuel gas

toward or away from the wall of the furnace at an angle α relative to the axis of the secondary fuel gas nozzle.

9. (Original) The improved burner configuration of claim 8 wherein the angle α is in a range of about 60° to about 120° from the axis.

10. (Original) The improved burner configuration of claim 1 wherein each secondary fuel gas nozzle has a tip having one or multiple fuel delivery openings positioned to eject fuel gas toward or away or both from the furnace wall.

11. (Original) The improved furnace burner configuration of claim 10 wherein each secondary fuel gas nozzle tip has multiple fuel delivery openings therein positioned within an outward angle β in a range of from about 10° to about 180° from both sides of a vertical plane through the longitudinal axis of the secondary fuel gas nozzle.

12. (Original) The improved furnace burner configuration of claim 1 wherein the furnace further comprises an array of secondary fuel gas nozzles located on the floor of the furnace.

13. (Original) The improved furnace burner configuration of claim 1 wherein the furnace includes floor burners positioned adjacent to the wall having radiant wall burners attached thereto.

14. (Original) The improved furnace burner configuration of claim 12 wherein the furnace includes floor burners positioned adjacent to the wall having radiant wall burners attached thereto and the secondary fuel gas nozzles each have tips having multiple fuel delivery openings positioned to eject fuel gas toward or away from the wall in multiple directions.

15. (Currently amended) A method of burning fuel gas and air in a radiant wall furnace whereby flue gases of reduced NO_X content are formed comprising the steps of:

(a) providing a fuel lean mixture of fuel gas and air to individual radiant wall burners arranged in rows along a wall of the furnace;

(b) causing the mixture of fuel gas and air to flow radially outward from each radiant wall burner across the wall of the furnace whereby the mixture contains excess air and is burned at a relatively low temperature and flue gases having low NO_X content are formed therefrom; and

(c) providing secondary fuel gas from secondary fuel gas nozzles for mixing with flue gases in the furnace and combusting with excess air from the radiant wall burners, lowering the temperature of the burning fuel gas and reducing the formation of NO_X, said secondary fuel gas nozzles being located separate and remote from said radiant wall burners ~~whereby~~ such that the secondary fuel gas is not encapsulated or surrounded by the mixture of fuel gas and air from said burners thereby allowing secondary fuel gas to mix ~~mixes~~ with flue gases in the furnace prior to mixing with said mixture of fuel gas and air from said burners ~~and combusts with excess air from the radiant wall burners, lowers the temperature of the burning fuel gas and reduces the formation of NO_X~~.

16. (Original) The method of claim 15 wherein the secondary fuel gas is discharged from secondary fuel gas nozzles in at least one row adjacent to the rows of radiant wall burners.

17. (Original) The method of claim 15 wherein the secondary fuel gas nozzles direct secondary fuel gas to a location in the furnace on the opposite side of the combustion zone from the radiant wall burners.

18. (Original) The method of claim 15 wherein the rows of radiant wall burners are approximately parallel, the radiant wall burners are approximately evenly spaced in columns

and the secondary fuel gas nozzles are in one or two rows with each secondary fuel gas nozzle positioned adjacent to a radiant wall burner or offset from a radiant wall burner.

19. (Original) The method of claim 15 wherein the rows of radiant wall burners are approximately parallel, the radiant wall burners are approximately evenly spaced in columns and the secondary fuel gas nozzles are in a middle first row and an outside second row wherein each secondary fuel gas nozzle of the middle first row is adjacent to a radiant wall burner and wherein each secondary fuel gas nozzle of the outside second row is offset from a radiant wall burner.

20. (Original) The method of claim 15 wherein the radiant wall burner rows are approximately parallel and each row is offset one-half spacing from the regular spacing of adjacent rows.

21. (Original) The method of claim 15 wherein one or more rows of secondary fuel gas nozzles are located adjacent to the rows of radiant wall burners and an additional one or more rows of secondary fuel gas nozzles are located midway within the rows of radiant wall burners.

22. (Original) The method of claim 15 wherein each secondary fuel gas nozzle has a tip having at least one fuel delivery opening therein to eject fuel gas toward or away from the wall of the furnace at an angle α relative to the axis of the secondary fuel gas nozzle.

23. (Original) The method of claim 22 wherein the angle α is in a range of about 60° to about 120° from the axis.

24. (Original) The method of claim 15 wherein each secondary fuel gas nozzle has a tip having one or multiple fuel delivery openings positioned to eject fuel gas toward or away or both from the furnace wall.

25. (Original) The method of claim 24 wherein each secondary fuel gas nozzle tip has multiple fuel delivery openings therein positioned within an outward angle β in a range of from about 10° to about 180° from both sides of a vertical plane through the longitudinal axis of the fuel gas nozzle.

26. (Original) The method of claim 15 wherein the furnace further comprises an array of secondary fuel gas nozzles located on the floor of the furnace.

27. (Original) The method of claim 15 wherein the furnace includes floor burners positioned adjacent to the wall having radiant wall burners attached thereto.

28. (Original) The method of claim 26 wherein the furnace includes floor burners positioned adjacent to the wall having radiant wall burners attached thereto and the secondary fuel gas nozzles each have tips having multiple fuel delivery openings positioned to eject fuel gas toward or away from the wall in multiple directions.